

Shumaker Public Service Corporation (NPDES No. AR0034363)
East Camden, Arkansas
Two Bayou WER Study
Event 1 - January 3, 2007

Laboratory Water Test (Hardness = 77)

Nominal Cu (ug/L)	Measured Total Cu (pre-test) (ug/L)	Measured Total Cu (post-test) (ug/L)	Time-Weighted Average (Total, ug/L)	% Loss	Measured Dissolved Cu (pre-test) (ug/L)	Measured Dissolved Cu (post-test) (ug/L)	Time-Weighted Average (Dissolved, ug/L)	% Loss	Mortality (n = 20)	EC50 (ug/L)
Control	1	1	1	0.00	1	1	1	0.00	0	Total = <7.15
6.5	7	7.3	7.15	-0.04	6.3	5.7	6	0.10	19	
11	10	11	10.5	-0.10	10	9.3	9.65	0.07	20	
18	17	16	16.5	0.06	17	17	17	0.00	20	Dissolved = <6
30	29	31	30	-0.07	28	30	29	-0.07	20	
50	49	50	49.5	-0.02	47	48	47.5	-0.02	20	

*Note - Lab water control copper concentrations (total and dissolved) were below the detection limit of 1 ug/L.

Simulated Downstream Water Test (Hardness = 16)

Nominal Cu (ug/L)	Measured Total Cu (pre-test) (ug/L)	Measured Total Cu (post-test) (ug/L)	Time-Weighted Average (Total, ug/L)	% Loss	Measured Dissolved Cu (pre-test) (ug/L)	Measured Dissolved Cu (post-test) (ug/L)	Time-Weighted Average (Dissolved, ug/L)	% Loss	Mortality (n = 20)	EC50 (ug/L)
Control	11	4.9	7.95	0.55	8.5	2.8	5.65	0.67	0	Total = 66.26
20	27	20	23.5	0.26	18	18	18	0.00	0	
40	47	44	45.5	0.06	34	29	31.5	0.15	0	
60	66	61	63.5	0.08	45	42	43.5	0.07	5	Dissolved = 46.69
80	83	76	79.5	0.08	59	58	58.5	0.02	20	
100	110	110	110	0.00	78	84	81	-0.08	20	

Shumaker Public Service Corporation (NPDES No. AR0034363)
East Camden, Arkansas
Two Bayou WER Study
Event 2 - February 14, 2007

Laboratory Water Test (Hardness = 79)

Nominal Cu (ug/L)	Measured Total Cu (pre-test) (ug/L)	Measured Total Cu (post-test) (ug/L)	Time-Weighted Average (Total, ug/L)	% Loss	Measured Dissolved Cu (pre-test) (ug/L)	Measured Dissolved Cu (post-test) (ug/L)	Time-Weighted Average (Dissolved, ug/L)	% Loss	Mortality (n = 20)	EC50 (ug/L)
Control	1	1	1	0.00	1	1	1	0.00	0	Total = 5.69
2.5	3.1	2.5	2.8	0.19	3	1.9	2.45	0.37	0	
5	5.3	5.3	5.3	0.00	5	4.5	4.75	0.10	11	
10	11	12	11.5	-0.09	11	11	11	0.00	18	Dissolved = 5.15
20	21	24	22.5	-0.14	19	23	21	-0.21	20	
40	40	49	44.5	-0.23	41	48	44.5	-0.17	20	

*Note - Lab water control copper concentrations (total and dissolved) were below the detection limit of 1 ug/L.

Simulated Downstream Water Test (Hardness = 13)

Nominal Cu (ug/L)	Measured Total Cu (pre-test) (ug/L)	Measured Total Cu (post-test) (ug/L)	Time-Weighted Average (Total, ug/L)	% Loss	Measured Dissolved Cu (pre-test) (ug/L)	Measured Dissolved Cu (post-test) (ug/L)	Time-Weighted Average (Dissolved, ug/L)	% Loss	Mortality (n = 20)	EC50 (ug/L)
Control	8.8	6.2	7.5	0.30	5.7	5.6	5.65	0.02	0	Total = 85.91
20	32	24	28	0.25	20	20	20	0.00	0	
40	50	38	44	0.24	34	33	33.5	0.03	0	
60	66	48	57	0.27	47	47	47	0.00	0	Dissolved = 65.64
80	89	73	81	0.18	62	61	61.5	0.02	7	
100	110	97	103.5	0.12	80	77	78.5	0.04	17	

**Table 4- . ANALYTICAL RESULTS FOR LABORATORY WATER
Shumaker Public Service Corporation, East Camden, Arkansas**

Compound	Units	EVENT 1 January 3, 2007	EVENT 2 February 14, 2007
Alkalinity	mg/L (as CaCO ₃)	56	58
TSS	mg/L	<4	<4
pH	units	7.4	8
Hardness	mg/L	77	79
DOC	mg/L	<1	<1

**Table 4- . ANALYTICAL RESULTS FOR SIMULATED DOWNSTREAM WATER
Shumaker Public Service Corporation, East Camden, Arkansas**

Compound	Units	EVENT 1 January 3, 2007	EVENT 2 February 14, 2007
Alkalinity	mg/L (as CaCO ₃)	16	14
TSS	mg/L	8	16
pH	units	6.7	7.2
Hardness	mg/L	16	13
DOC	mg/L	7.6	8.8